



June 5, 2018
Certified Mail No. 7017 3040 0000 5048 2588
Return Receipt Requested

Town of Ipswich
c/o Tony Marino, Town Manager
25 Green Street
Ipswich, MA 01938

Subject: CERTIFICATE OF NON-COMPLIANCE and DAM SAFETY ORDER

Dam Name:	Dow Brook Reservoir Dam
Location:	Ipswich
National ID No:	MA00165
Known Condition:	UNSAFE
Hazard Potential:	Significant
Essex Registry of Deeds:	Book 2701, Page 479

Dear Mr. Marino:

In accordance with 302 CMR 10.08, the Department of Conservation and Recreation (DCR), Office of Dam Safety (ODS) has determined that Dow Brook Reservoir Dam does not meet accepted dam safety standards and is a potential threat to public safety. Therefore, DCR hereby issues a **CERTIFICATE OF NON-COMPLIANCE and DAM SAFETY ORDER**.

ODS records indicate that the Town of Ipswich is the Owner of the Dow Brook Reservoir Dam, National Inventory of Dams No. MA00165. ODS classifies the dam as an **Intermediate Size, Significant Hazard Potential** Structure. Significant Hazard Potential Dams are dams that may cause the loss of life and property damage in the event of dam failure.

COMMONWEALTH OF MASSACHUSETTS · EXECUTIVE OFFICE OF ENERGY & ENVIRONMENTAL AFFAIRS

Department of Conservation and Recreation
251 Causeway Street, Suite 600
Boston MA 02114-2119

617-626-1250 617-626-1351 Fax

www.mass.gov/orgs/departments-of-conservation-recreation



Charles D. Baker
Governor

Karyn E. Polito
Lt. Governor

Matthew A. Beaton, Secretary, Executive
Office of Energy & Environmental Affairs

Leo Roy, Commissioner
Department of Conservation & Recreation

On April 25, 2018, an inspection of the Dow Brook Reservoir Dam was performed by engineering consultants Haley & Aldrich, Inc. As a result of this inspection, the dam was determined to be **STRUCTURALLY DEFICIENT** and in **UNSAFE** condition. The dam has been found to be in need of repair, breaching or removal to bring the dam into compliance with dam safety regulations.

The CERTIFICATE OF NON-COMPLIANCE is based on the above-referenced inspection report results which listed the observance of the following deficiencies:

- **Seeps have developed on the downstream toe of the dam on the right side. The observed seep measured about 11 ft on the downstream slope, perpendicular to the dam axis, and 8 ft wide, along the dam axis. During the April 10, 2018 site visit, the seep was actively producing water. On April 25, 2018, with the reservoir level about 3 ft lower than on April 10, the seep area of concern was wet and saturated with standing puddles, but water was not actively flowing.**
- Two additional seeps were observed 8 to 12 ft north of the main seep on downstream slope. These additional seeps were 3 to 4 in diameter.
- Seepage breakout at left toe
- Trees and vegetation on the left upstream abutment contact with the dam
- Minor cracking and rusting observed at spillway

These foregoing deficiencies compromise the structural integrity of the dam and present a potential threat to public safety. ODS has determined that the dam needs to be repaired, breached or removed in order to bring the dam into compliance with dam safety regulations.

As stated in the most recent Phase I inspection report dated August 29, 2017, the Ipswich Power Plant is located near the tow of the dam. A failure of Dow Brook Reservoir Dam is expected to flood the Power Plant and cause Route 1A to be impassable, possibly washing out the culvert/bridge. Also, the southeast end of Hammond Street, Warehouse Lane and Railroad Avenue could be impacted by flood waters.

G.L. c. 253, Sections 44-48 and 302 CMR 10.00 set forth the jurisdiction for ODS and its authority to take action and order actions to be taken. For your information a copy of the Dam Safety Regulations, 302 CMR 10.00 Dam Safety, can be found on the ODS website.

DAM SAFETY ORDER:

In accordance with the authority of G.L. c. 253, Section 47, 302 CMR 10.07 and 10.08 you are hereby **ORDERED** to comply with the following:

- 1) **Maintain a drawn down impoundment level.** The impoundment shall be maintained at the Spillway Invert Elevation, or lower, until the above referenced deficiencies are resolved. The condition of the dam should be monitored frequently for signs of additional seepage and deterioration.

- 2) **Conduct Follow-up Inspections:** You shall complete follow-up visual inspections at three (3)-month intervals, conducted by a registered professional civil engineer qualified to conduct dam inspections, at your cost, until adequate repairs are made or the dam is adequately breached. You shall submit the first Follow-up inspection to ODS no later than **August 1, 2018**.

Follow-up inspections are to be summary in format and shall provide a written description, including photographs, of any changes in condition. Your engineer is to use the attached ODS Poor Condition Dam Follow-up Inspection Form to report follow-up inspection findings. The form is also available electronically on the ODS web site. Your engineer shall include a cover letter on engineering firm letterhead that briefly summarizes the current follow-up inspection and findings.

You shall submit one (1) hard copy printed double-sided and one (1) electronic pdf copy of all completed follow-up visual inspection reports to ODS within thirty (30) days of the date of follow-up inspection field work.

- 3) **Conduct Phase II Inspection and Investigations.** You shall hire at your cost, a qualified registered professional engineer with dam engineering experience (engineer) to conduct a Phase II Inspection and Investigation of the dam to evaluate the structural integrity and spillway hydraulic adequacy of your dam and to develop/implement a plan to bring the dam into compliance with dam safety regulations by adequately repairing, breaching or removing the dam (see attached Phase II Investigation Outline).

- a. You shall commence the Phase II Inspection and Investigation no later than **September 3, 2018**. The Phase II Inspection and Investigation is to conform to the attached Phase II Investigation Outline. You are to, in a letter to ODS, no later than **August 20, 2018**, identify your selected engineer and inform ODS of the start date of the Phase II work.
- b. The Phase II Inspection and Investigation is to be completed, signed and stamped by your engineer and copies of the Phase II final report are to be delivered to ODS no later than **December 3, 2018**.

You shall include a cover letter with the submitted Phase II report which describes your selected alternative to bring the dam into compliance with dam safety regulations. The owner shall submit a statement of your intent to implement inspection report recommendations to address structural and operational deficiencies to ODS upon submission of the required Phase II Inspection and Investigation completed by your engineer.

- 4) **Bring the dam into compliance and complete all repair, breach or removal work no later than December 3, 2019.** With your Phase II submittal, you must also provide a proposed timeline to design, permit and construct the selected alternative to repair, breach or remove the dam. The selected alternative must be completed, and the dam brought into compliance with Dam Safety regulations, by December 3, 2019.

5) Additional Requirements:

- a. You shall furnish copies of all required submittals listed above via certified mail.
- b. In order to maintain compliance with the Commonwealth's Wetlands Protection Laws you may have to seek requisite approval from your local Conservation Commission in accordance with G.L. c. 131, §40. You are obligated to contact and maintain communication with the Ipswich Conservation Commission and any other local, state or federal permitting agency to ensure compliance with the Wetlands Protection Act and any other regulatory requirements.
- c. You must inform the following parties about the condition of the dam and your developing plans to bring the dam into compliance with dam safety regulations: all abutters of the impoundment upstream; property owners within one-half mile downstream of the Dow Brook Reservoir Dam; Division of Fisheries & Wildlife, Northeast District, 85 Fitchburg Rd, Ayer, MA 01432; Department of Environmental Protection, Northeast Region, 205B Lowell St, Wilmington, MA 01887; Select Board, 25 Green St, Ipswich, MA 01938; Conservation Commission, 25 Green St, Ipswich, MA 01938; Emergency Management Director, 25 Green St, Ipswich, MA 01938.

Please be advised that in accordance with G.L. c. 253, § 47, "any person who fails to comply with the provisions of this chapter or of any order, regulation or requirement of the department relative to dam safety, shall be fined an amount not to exceed \$5,000 for each offense, to be fixed by the court." Furthermore, each violation shall be regarded as a separate and distinct offense and, in case of a continuing violation, each day's continuance thereof shall be deemed to be a separate and distinct offense.

Nothing in this order releases the owner from the requirements of any prior Dam Safety Order issued for this dam.

In accordance with 302 CMR 10.08, this CERTIFICATE OF NON-COMPLIANCE and DAM SAFETY ORDER will be recorded by the DCR at the Registry of Deeds in the county where the dam lies. Issuance of a Certificate of Compliance following adequate repair or breaching of the dam will be required to discharge the CERTIFICATE OF NON-COMPLIANCE and DAM SAFETY ORDER.

Please direct any technical questions, correspondence, or submittals to Emily Caruso, Department of Conservation and Recreation, Office of Dam Safety, 180 Beaman Street, West Boylston, MA 01583 or Emily.Caruso@state.ma.us. Other questions regarding process and administration of Dam Safety regulations should be directed to Bill Salomaa, Director of Office of Dam Safety, at William.Salomaa@state.ma.us. Additional dam safety information can be found at the DCR-ODS website: <http://www.mass.gov/eea/agencies/dcr/conservation/dam-safety/>.

Thank you for your cooperation.

Sincerely,

A handwritten signature in black ink, appearing to be 'Leo Roy', written in a cursive style.

Leo Roy
Commissioner

CC: Vicki Halmen, Water/Wastewater Director, Ipswich
Ipswich Select Board
Ipswich Emergency Management Director
Ipswich Conservation Commission
Senator Bruce E. Tarr
Representative Bradford R. Hill
Barbara Newman, U.S. Army Corps
Northeast Region, DEP
Deirdre Buckley, MEPA
Northeast District, DFW
Rob Lowell, DCR
William Salomaa, DCR
Ariana Johnson, Esq., DCR
Nick Wildman, DER

Department of Conservation and Recreation
Office of Dam Safety
Phase II Inspection and Investigation Outline

I.	Review of existing information.....
II.	Updated Detailed Phase I surface inspection in compliance with Office of Dam Safety Phase I Inspection format.....
III.	Subsurface Investigations – borings, sampling, analysis.....
IV.	Topographic Survey, wetlands flagging/delineation, of sufficient detail to support not only the Phase II effort, but sufficient for the future implementation of design phase.....
V.	Stability and seepage analyses – Seismic and static stability evaluation of dam (upstream and downstream slopes, internal materials), seepage potential, internal erosion potential, piping potential.....
VI.	Hydrologic/Hydraulic Analysis and spillway inadequacy resolution.....
VII.	Alternatives analysis and presentation of conceptual designs and associated estimated design, permitting and construction costs to bring the dam structure into compliance with Chapter 253 Section 44-48 and 302 CMR 10.00 Dam Safety Regulations by either executing selected repair plan or breach plan.....
VIII.	Final Report Presented to the Office of Dam Safety.....

**Commonwealth of Massachusetts
Department of Conservation and Recreation
Office of Dam Safety Poor Condition Dam Follow-up Inspection Form**

(Complete this inspection form and provide a cover letter on consulting firm letterhead that briefly summarizes the current follow-up inspection and findings. The cover letter shall be signed and stamped by the Registered Professional Engineer in charge of the inspection)

Dam Name:
Dam Owner:
Nat. ID Number:
Hazard Potential:
Location of Dam (town):
Coordinate location (lat, long):
Date of Inspection:
Weather:

Consultant Inspector(s): firm name and name of Registered Professional Engineer in charge of inspection.

Others in Attendance at Field Inspection: include list of names, affiliation and phone numbers.

Attachments: Updated site sketch with photo locations, Updated photos, and copy of locus map from Phase I report and other applicable attachments.

- I. Previous Inspection date/Overall Condition:**
 - Date of most recent formal Phase I Inspection Report:
 - List the overall condition reported in most recent Phase I Inspection Report:
- II. Previous Inspection Deficiencies:**
 - List identified deficiencies in the most recent Phase I Inspection Report:
- III. Overall Condition of Dam at the Time of the Current Follow-up Inspection:**
 - a. State the current condition
 - b. Have conditions changed since the previous inspection? Yes or no.
- IV. Comparison of Current Conditions to Condition Listed in Previous Phase I Inspection Report:**
 - a. Have any of the deficiencies listed in the previous Phase I Inspection Report worsened?
 - b. If yes, list the changes.
 - c. Are there any additional deficiencies that have been identified in the current inspection?

d. If yes, list the deficiencies and describe.

V. Dam Safety Orders:

- List dam safety orders that have been issued to the dam owner pertaining to this dam.

VI. Maintenance:

1. Indicate if there exists an operation and maintenance plan for the dam.
2. Indicate if it appears the dam is being maintained.

VII. Recommendations:

VIII. Other Comments or Observations:

IX. Updated Site Sketch with Photo Locations:

X. Updated Photos:

XI. Copy of Locus Map from Phase I Report:

XII. Other applicable attachment: